## REMARKS/ARGUMENTS

Claims 1-30 are pending in the present application.

This Amendment is in response to the Final Office Action mailed September 25, 2007 to support a Request for Continued Examination (RCE) filed concurrently. In the Final Office Action, the Examiner rejected claims 1-30 under 35 U.S.C. §101; claims 1-3, 7-11, and 15 under 35 U.S.C. §102(e); and claims 5, 13, 16-18, 20, 22-26, 28, and 30 under 35 U.S.C. §103(a). In addition, the Examiner indicated allowable subject matter for claims 4, 6, 12, 14, 19, 21, 27, and 29 if they are rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has amended claims 4, 6, 12, 16, 19, 23, and 27. Reconsideration in light of the amendments and remarks made herein is respectfully requested.

### *Rejection Under 35 U.S.C. § 101*

In the Final Office Action, the Examiner rejected claims 1-30 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. However, the Examiner only presents arguments for claims 16 and 23 (Final Office Action, page 7, first parargraph). In addition, the Examiner stated that "with respect to Claims 1 and 8 (amendment, Pages 8-10), the examiner has withdrawn the previous 35 U.S.C. 101 rejection directed to non-statutory subject matter." (Final Office Action, page 2, paragraph No. 2). Accordingly, Applicant believes that the reference of claims 1-30 is a mistake and should be 16- 30.

In response to the rejection of claims 16 and 23, Applicant respectfully disagrees with the Examiner's characterization of the claim language. However, to expedite the prosecution of the application, Applicant has amended claims 16 and 23 to recite "computer-readable storage medium" as suggested by the Examiner.

Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §101 be withdrawn.

### *Rejection Under 35 U.S.C. § 102*

In the Office Action, the Examiner rejected claims 1-3, 7-11, and 15 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,272,462 issued to Nguyen et al. ("Nguyen").

Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a prima facie case of anticipation.

Nguyen discloses a supervised adaptation using corrective N-best decoding. A recognizer is designed to select the best solution, that is, the model that best corresponds to the input utterance (Nguyen, col. 2, lines 56-58). In this application the recognizer supplies the N-best solutions 14, that is, a predetermined fixed plural number of solutions or, alternatively, a plural number of solutions that had a recognition score greater than a predetermined threshold (Nguyen, col. 2, lines 58-62).

Nguyen does not disclose, either expressly or inherently, at least one of: (1) calculating estimated weights for identified errors in recognition of utterances based on a reference string; (2) marking sections of the utterances as being misrecognized and associating the estimated weights with the sections of the utterances; and (3) using the weighted sections of the utterances to convert a speaker independent model to a speaker dependent model.

First, Nguyen merely discloses N-best solutions (Nguyen, col. 2, lines 58-62), not utterances. A best solution is a model that best corresponds to the input utterance (Nguyen, col. 2, lines 56-58). A best solution, therefore, is not an utterance, but merely a model that best corresponds to the utterance. In the Final Office Action, the Examiner contends that "[s]ince an incorrect/unreliable label is assigned to recognition transcription segment results, which directly maps to a specific utterance section in the form of a letter or word, the examiner maintains that Nguyen does effectively teach marking misrecognized utterance sections." (Final Office Action, page 4, lines 9-12). Applicant respectfully disagrees. The weight is applied to the N-most probable labels (Nguyen, col. 3, lines 7-20), not for identified errors. Most probable labels refer the labels that are probably correct. They are not identified errors.

Second, Nguyen merely discloses applying the weights to the N-best solutions (Nguyen, col. 3, lines 47-48), not marking sections of the utterances as being misrecognized, and not associating the estimated weights with the sections of the utterances. The weights are applied to "push models that generate incorrect labels away from those that generate correct ones." (Nguyen, col. 3, lines 39-41). Since the weights are applied only to the N-best solutions, no sections of the utterances are marked. Furthermore, since no sections are marked, there cannot be associating the estimated weights to the sections. In the Final Office Action, the Examiner

contends that "negative weights are applied to incorrect transcription sections *(Col. 3, Lines 32-56)*, which, . . . , directly map to speech or utterance sections." (Final Office Action, page 4, lines 13-16). However, as argued above, the weights are applied to the N-best transcription, not sections of the utterances as being misrecognized. Nguyen's model does not provide for sections of the utterances. Nguyen's model provides for N-best solutions. N-best solutions are a predetermined fixed plural number of solutions or alternatively, a plural number of solutions that had a recognition score greater than a predetermined threshold (Nguyen, col. 2, lines 59-62). Since they are solutions with high recognition scores, they do not represent misrecognized utterances.

Third, Nguyen merely discloses once weights are applied to the N-best solutions, the weighted information is then used by the model adaptation module 18 to selectively adapt the speech models 12 (Nguyen, col. 3, lines 47-50), not using the weighted sections of the utterances to convert a speaker independent model to a speaker dependent model. The models 12 are speaker-independent model (Nguyen, col. 2, lines 48-49). Accordingly, there is no conversion of SI model to SD model. In the Final Office Action, the Examiner contends that "the new model would be speaker dependent because it has been adjusted for data corresponding to a specific new speaker." (Final Office Action, page 5, lines 1-2). However, as discussed above, Nguyen merely discloses using the weighted information as applied to the N-best solutions, not using the weighted sections of the utterances.

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Vergegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). Since the Examiner failed to show that Nguyen teaches or discloses any one of the above elements, the rejection under 35 U.S.C. §102 is improper.

Therefore, Applicants believe that independent claims 1, 8, 16, and 23, and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicants respectfully request the rejection under 35 U.S.C. §102(e) be withdrawn.

## *Rejection Under 35 U.S.C. § 103*

In the Final Office Action, the Examiner rejected claims 5, 13, 16-18, 20, 22-26, 28, and 30 under 35 U.S.C. §103(a) as being unpatentable over Nguyen in view of U.S. Patent No. 6,253,181 issued to Junqua ("Junqua"). Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a prima facie case of obviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP §2143, p. 2100-126 to 2100-130 (8th Ed., Rev. 5, August 2006).* Applicant respectfully submits that there is no suggestion or motivation to combine their teachings, and thus no *prima facie* case of obviousness has been established.

Furthermore, the Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), stated: "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." MPEP 2141. In *KSR International Co. vs. Teleflex, Inc.*, 127 S.Ct. 1727 (2007) (Kennedy, J.), the Court explained that "[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." The Court further required that an explicit analysis for this reason must be made. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR 127 S.Ct.* at 1741, quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). In the instant case, Applicant respectfully submits that there are significant differences between the cited references and the claimed invention and there is no apparent

reason to combine the known elements in the manner as claimed, and thus no *prima facie* case of obviousness has been established.

Nguyen discloses a supervised adaptation using corrective N-best decoding as discussed above.

Junqua discloses a speech recognition and teaching apparatus able to rapidly adapt to difficult speech of children and foreign speakers. A likelihood score ratio compares the likelihood score associated with correct recognition with the mean or average of the likelihood scores associated with incorrect recognition (Junqua, col. 4, lines 18-24). The ratio uses the Hidden Markov Model (HMM) (Junqua, col. 5, lines 35-45).

Nguyen and Junqua, taken alone or in any combination, do not disclose or render obvious, at least one of: (1) calculating estimated weights for identified errors in recognition of utterances based on a reference string; (2) marking sections of the utterances as being misrecognized and associating the estimated weights with the sections of the utterances; (3) using the weighted sections of the utterances to convert a speaker independent model to a speaker dependent model; and (4) calculating the estimated weights comprises computing an average likelihood difference per frame according to equation as follows:

$$Ln = \frac{H_L^n}{H_e^n - H_b^n} - \frac{R_L^n}{R_e^n - R_b^n}$$ where $H_L^n$ is a log likelihood of hypothesis word n, $H_b^n$ is a

beginning frame index (in time), and $H_e^n$ is an end frame index, and $R_L^n$, $R_b^n$ and $R_e^n$ are counter parts for the reference string, as recited in claims 5 and 13.

As discussed above in the §102 rejection, Nguyen does not disclose elements (1) - (3). Therefore, any combination of Nguyen with any other reference in rejecting claims 5, 13, 16-18, 20, 22-26, 28, and 30, is improper.

Furthermore, Junqua merely discloses the likelihood of observation given HMM model (Junqua, col. 5, lines 43-44), not an average likelihood difference per frame, or averaging the average likelihood difference over error words.

In addition, Junqua merely discloses a likelihood score ratio that compares the likelihood score associated with the mean or average of the likelihood scores associated with the incorrect recognition (Junqua, col. 4, lines 18-21). The likelihood ratio is the ratio between the likelihood

score for correct recognition and the likelihood score for incorrect recognition (Junqua, col. 5, lines 26-30).. In contrast, claim 5 recites the average likelihood difference (not ratio) per frame.

In the Final Office Action, the Examiner contends that "the calculation is actually a mean or average log-likelihood difference between a correct recognition segment likelihood and mean incorrect segment likelihood." (Final Office Action, page 5, lines 8-10). However, a log-likelihood difference is different than a likelihood difference. It is well known that a logarithm of a ratio (a/b) is equal to the difference of the log(a) and log(b). But this difference is the difference of two logarithms, not the difference of the likelihood as shown in claim 5.

The Examiner failed to establish a prima facie case of obviousness and failed to show there is teaching, suggestion, or motivation to combine the references. When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to: (A) The claimed invention must be considered as a whole; (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and (D) Reasonable expectation of success is the standard with which obviousness is determined. Hodosh v. Block Drug Col, Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986). "When determining the patentability of a claimed invention which combined two known elements, 'the question is whether there is something in the prior art as a whole suggest the desirability, and thus the obviousness, of making the combination.'" In re Beattie, 974 F.2d 1309, 1312 (Fed. Cir. 1992), 24 USPQ2d 1040; Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 1462, 221 USPQ (BNA) 481, 488 (Fed. Cir. 1984). To defeat patentability based on obviousness, the suggestion to make the new product having the claimed characteristics must come from the prior art, not from the hindsight knowledge of the invention. Interconnect Planning Corp. v. Feil, 744 F.2d 1132, 1143, 227 USPQ (BNA) 543, 551 (Fed. Cir. 1985). To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the Examiner to show a motivation to combine the references that create the case of obviousness. In other words, the Examiner must show reasons that a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the prior elements from the cited prior references for combination in the manner claimed. In re Rouffet, 149 F.3d 1350 (Fed. Cir.

1996), 47 USPQ 2d (BNA) 1453. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or implicitly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973. (Bd.Pat.App.&Inter. 1985). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Furthermore, although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." In re Mills 916 F.2d at 682, 16 USPQ2d at 1432; In re Fritch, 972 F.2d 1260 (Fed. Cir. 1992), 23 USPQ2d 1780.

Moreover, the Examiner failed to establish the factual inquires in the three-pronged test as required by the *Graham* factual inquires. There are significant differences between the cited references and the claimed invention as discussed above. Furthermore, the Examiner has not made an explicit analysis on the apparent reason to combine the known elements in the fashion in the claimed invention. Accordingly, there is no apparent reason to combine the teachings of Nguyen and Junqua.

In the present invention, the cited references do not expressly or implicitly suggest any of the above elements. In addition, the Examiner failed to present a convincing line of reasoning as to why a combination of Nguyen and Junqua is an obvious application of speaker adaptation using weighted feedback.

Therefore, Applicant believes that independent claims 1, 8, 16, and 23, and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §103(a) be withdrawn.

### *Allowable Subject Matter*

Applicant notes with appreciation the Examiner's indication of allowable subject matter. The Examiner objects to claims 4, 6, 12, 14, 19, 21, 27, and 29 as being dependent on a rejected base claim, but indicates that the claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has

amended claims 4, 12, 19, and 27 to include the limitations of the respective base claims.

Accordingly, Applicant believes that claims 4, 12, 19, and 27 are allowable.

## CONCLUSION

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Dated: December 21, 2007      By

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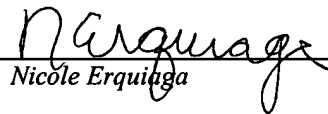*I hereby certify that this correspondence is, on the date shown below, being:*

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